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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Marketing Service
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THE DUAL GRADING SYSTEM FOR BEEF

Remarks by John C. Pierce, Deputy Director, Livestock Division,
Agricultural Marketing Service, U.S. Department of Agriculture,
before the Twelfth Annual Cattlemen's Conference, Raleigh, North
Carolina, January 18, 1963

I very much appreciate the opportunity to attend and participate in your annual conference. As a vital segment of the livestock industry, you have a direct interest in many of the programs of the Agricultural Marketing Service--the reporting of market news, the regulatory services, and the marketing research activities within the AMS. Today I want to direct my remarks to still another activity, the Federal grading of beef--an activity that came into being in May 1927 at the insistence of cattle producers. As many of you recall, in April 1962 the Secretary of Agriculture announced a new dual grading proposal for beef and provided that the service would be available for a 1-year trial period beginning July 1, 1962. In the meantime, of course, beef grading continues as in the past--as a voluntary service under the current official USDA standards.

It will be my objective today to briefly describe the dual grading concept and to report on some of our research and experience with it. Also, I would like to give you a progress report on the commercial use of dual grading. I am tempted to tell you a number of things that dual grading is not because there are many misconceptions. However, I prefer a positive rather than a negative approach.

The proposed dual grade standards announced by the Department have been described by some as the most significant development since the inception of Federal beef grading some 35 years ago. It represents an effort to provide a more precise market identification for reflecting consumer preference back through the marketing channel to you, the producer. Grades perform but one primary mission--to identify the beef and cattle which you have produced. Thus, they provide the tool or the means for identifying the factors that affect the ultimate acceptability and value of the product which you produce.

New Yardstick Needed

You may logically ask, "What is the basic problem in beef production and marketing, and why this need for a new yardstick?" The problem is one of a pronounced, steady increase in consumer aversion to excess fat on meat. This is a problem that has concerned swine producers for several years.

The problem sounds simple. It may appear as simple as reducing the length of time that cattle stay in the feedlot, but it isn't, and don't let anyone tell you that it is. First of all, there is no evidence that consumers are dissatisfied with the palatability--the flavor, the tenderness, and the juiciness--of fed beef. Mrs. Consumer has become a consistent, repeat customer for high quality beef. However, she wants less waste fat, and she's forcing the retailer to trim it away in ever-increasing quantities.

The challenge to the producer is clear cut--to produce thickly muscled cattle that combine high quality meat with a maximum yield of preferred cuts and a minimum of excess fat. The responsibility of the marketing system is likewise equally clear--to chart the course for the producer. To accomplish this the marketing system must provide a method of identification that will more accurately point up differences in both the eating quality of meat, and the yield or percentage of trimmed retail meat produced by the beef animal. And, furthermore, the marketing system must reflect the appropriate price differentials and values in trading.

This is what the dual grading system under consideration by the Department is all about. We have made an extensive and detailed study of a system of beef grading that will provide two identifications for carcasses and cattle. One of these would relate to the quality of the meat--the characteristics associated with tenderness, juiciness, and flavor--and the other would relate to the yield--the percentage of salable meat that the retailer cuts from the carcass. These are the two factors that affect value in the beef carcass. We have made considerable progress in the swine industry with the identification of differences in cut-out that amount to \$1.50 to \$2.00 per hog. Yet, today our marketing system for beef is not doing a very effective job of identifying cut-out differences of \$25 to \$30 per carcass and more.

In the next few minutes, I would like to compare our dual grading concept with the present grading system--and in so doing point out what we feel are some of the advantages of the dual grading system.

Eating Quality and Cutability Determine Value

The Department, as well as many universities, has conducted extensive studies aimed at determining the factors affecting the palatability of beef. This has proven to be a very complex subject. In July 1961, the Department issued a bulletin summarizing one of the most extensive studies that has been reported on this subject. This study was carried out under contract with the American Meat Institute Foundation. A major conclusion as it relates to this subject of grading can be stated very simply--the present grades do reflect measurable differences in eating quality, but they do not do a perfect job. However, neither this study nor any other

research results available to date provide the necessary information for improving the present evaluation of quality in beef. This is important to keep in mind in considering this whole subject of beef grading and how the present grade standards can be improved.

The second factor affecting the value of a beef carcass is what we have termed "cutability." This is a word which we have used to refer to the quantity or percentage of salable meat and the proportion of the high-value preferred cuts from the carcass.

As far back as 1953 and 1954, the Department conducted extensive studies involving the measuring, evaluation, and cutting of over 450 beef carcasses representing all grades, and varying widely in weight, conformation, and finish. In recent years, additional cutting data have been obtained on several hundred more carcasses.

In conducting these studies, we used the combined yield of boneless, closely trimmed retail cuts from the round, loin, rib, and chuck as our measure of cutability of the carcass. These four cuts represent more than 80 percent of the retail value of the carcass.

The results of these studies indicate that cutability of a beef carcass can be explained primarily by differences in fatness and muscling. This fact, in itself, is no startling surprise. This has long been an accepted premise. The truly significant point to be considered is the effect of these variations in cutability on the carcass value within the various quality grades. Our studies show that similar weight Choice grade carcasses may range in yield of trimmed boneless cuts from the round, loin, rib, and chuck from 55.0 down to 40.0 percent of their carcass weight. At prevailing retail prices, each 1 percent change in the cutability factor can make a difference of as much as \$1.50 per hundredweight in the value of a Choice grade carcass--as much as 90 cents per hundred on a liveweight basis. This means that between some 1000 pound Choice cattle there is an actual difference of over \$100 in retail value. While this much of a variation is definitely the exception rather than the rule, variations of \$25 to \$30 or more are not at all uncommon.

Present Standards Cannot Measure Cutability

Before going further into our studies of a dual grading system, I would like to review briefly our present grading system so that you can better appraise the effectiveness of the two systems in reflecting differences in quality and cutability. As you will see, both systems use many of the same concepts.

When reduced to their simplest form, the present standards provide for a series of grades, based on the composite evaluation or averaging together

of variations in two factors--conformation and quality. In evaluating quality we consider the marbling, color, texture, and firmness of the meat in relation to the maturity of the animal from which the meat was produced. These are the factors which, through the years, have been generally recognized as the most reliable indicators of eating quality. These are also used to evaluate quality in the dual grading system. In evaluating conformation we consider such factors as thickness of muscling, width in relation to length, and the relative development of the more valuable versus the less valuable parts of the carcass. After a grader has evaluated a carcass for its quality and its conformation, he then combines these evaluations into a single grade--Prime, Choice, Good, Standard, etc.

If each animal that came to market had the same degree of conformation as it had quality, grading would be very much simplified. Unfortunately, this is not the case. Some animals have a relatively high degree of conformation and a low degree of quality, whereas other animals may frequently have just the reverse development--a relatively high degree of quality and a lower degree of conformation.

I shall not take the time to discuss in detail how carcasses with these various combinations of conformation and quality are graded at the present time. However, it is very obvious that regardless of how variations in conformation and quality are combined, distinct inequities result. For example, a carcass with Prime quality and Prime conformation obviously would be graded Prime. However, a carcass with Prime quality and Good conformation would be graded Choice. A carcass with Prime quality and Standard conformation would be graded Good. Thus, dependent upon their conformation, it is possible for carcasses with Prime quality meat to be graded either Prime, Choice, or Good. These illustrations indicate some of the variations in characteristics of carcasses of the same grade. However, it appears to us--and the industry generally agrees--that, if a single grade determination is to be used, we are utilizing the logical method to combine these factors.

With respect to reflecting differences in cutability, our present grades do not consider the most important factor affecting cutability--the quantity of fat that is trimmed off by the retailer before the meat can be sold--the fat over the outside of the carcass and around the kidneys on the inside of the carcass. However, even if the present system of grades did give consideration to all the factors affecting cutability, no one has yet suggested an equitable system for combining quality and cutability into a single grade.

The Dual Grading Concept

Because our present system of grading fails to give as realistic an appraisal of value differences in beef carcasses as is needed, our recent efforts were aimed at developing the dual grading system--one in which a carcass would be given two grade identifications, one for the quality of its meat and another for its cutability. In this proposed system, the present grade names--Prime, Choice, Good, etc.,--are used to indicate differences in quality and a system of numbers--from 1 to 6--are used to indicate differences in cutability.

The quality grade continues to be determined in exactly the same manner as quality is determined in the regular grading system--by considering the marbling, color, texture, and firmness of lean in relation to the maturity of the animal from which the carcass was produced. Conformation is not considered as a factor in determining the quality grade but becomes a part of the determination of the yield or cutability grade.

Some people apparently feel that conformation, as it is now evaluated in grading and in livestock selection, is not considered in the dual grading system. We feel quite strongly that this is not the case. In fact we see no need for any drastic changes in evaluating conformation except distinguishing between muscle and fat as they influence shape and thickness of the individual. In determining the cutability grade, we are using the area of the cross section of but a single muscle--the rib eye--in relation to carcass weight and the fatness of the carcass, as a measure of muscling. In our studies we also made measurements of other muscles but the use of these in conjunction with the area of the rib eye has not given any better accuracy than the use of the rib eye alone.

Objective Measures of Cutability

Our studies have indicated that cutability--or yield of retail cuts--can be estimated with a very high degree of accuracy by using only four factors that are related to fatness and muscling. These are (1) thickness of fat over the rib eye, (2) the size of the rib eye, (3) the quantity of kidney and pelvic fat, and (4) the carcass weight. As carcasses increase in fatness--either in the fat over the outside of the carcass or in the quantity of kidney fat--this results in more fat that must be trimmed off in making retail cuts and lowers the cutability. The size of the rib eye muscle is a measure of the muscularity of the carcass. It is rather obvious, I think, that the more muscular a carcass the higher will be its cutability. When all other factors are constant, an increase in carcass weight lowers the cutability.

The relative effectiveness of these two systems of grading with respect to reflecting differences in quality and cutability are rather obvious. With respect to quality, under the dual grading system all meat of the same quality would be in the same grade whereas in the present grading system there is a considerable amount of overlap in quality between grades, particularly in the Choice and Good grades.

Under the dual grading system each carcass would be given a separate identification for its cutability which would provide the means for reflecting the appropriate price differentials attributable to this important factor. Each of these yield grades has a range of 2.3 percent of boneless cuts from the round, loin, rib, and chuck. At recent prices for Choice grade beef, this range in yield of cuts within each yield grade represents a range in retail sales value of about \$3.50 per hundredweight. Under the present system, conformation is the only factor considered which affects cutability and this influence is further masked because of the necessity of combining it with quality into a single grade.

Cutability Can Be Recognized in Live Animals

As livestock producers, it is highly important to you that these same differences in cutability of carcasses be readily recognized in live animals. To get some specific information on this subject, we conducted a series of studies which included about 1,000 cattle. The studies indicated that variations in the cutability of slaughter cattle can be recognized to a very satisfactory degree of precision--to such a degree, in fact, that trading practices could be logically developed to give proper consideration to this factor. For instance, our studies show that in about 50 percent of the live cattle we are able to estimate the yield of boneless cuts from the round, loin, rib, and chuck to within 1.0 percent of the actual carcass evaluation. We are able to estimate this yield to within 2.0 percent in about 80 percent of the cattle. This, we think, is very acceptable, and represents about the same degree of precision attainable in the evaluation of individual live hogs. On the basis of these studies, we are convinced that the same differences in muscling and fatness which produce cutability variations in carcasses can be satisfactorily recognized in live animals.

A discussion of this system of grading would hardly be complete without some mention of its impact on our marketing structure. We see no reason to suspect that dual grading need make any changes in the present marketing structure. Dual grading will be a more precise tool for both the seller and the buyer. Dual grading will offer market agencies the opportunity to perform a more professional service for the producer than ever before. There is no reason to believe that dual grading will necessarily encourage marketing by carcass weight and grade since cutability can be estimated alive with about the same precision as the factors now used in determining grade in slaughter cattle today.

I am sure that you are interested in the present status of dual grading. We feel that dual grading has made a satisfactory beginning although we also feel that it will need to be used on a larger scale before the industry can fully evaluate its potential merit.

Dual grading is being utilized by some packers in practically every section of the country. About 175 have used some dual grading and over 100 are using it regularly. A few packers are using it on all their production, but most are using it only on a portion of their carcasses.

Some packers apparently are using dual grading to a considerable extent to get a higher quality grade on some kinds of carcasses that would not qualify for grade under the regular system. For instance, there are carcasses with Choice quality meat which dual grade Choice but which, under our regular grades, would grade only Good because they have an inferior development of conformation. We think that this has focused undue attention on the effect that dual grading might have on the production of basically thin-fleshed animals. They pose no long-range threat to the superiority of the beef breeds for beef production. Basically, the beef breeds are thick muscled and many of them also have the ability to develop high quality of lean with a minimum of waste fat. This is the real meat-type animal--the type which definitely will improve our beef cattle. In the past, the trade has not established proper price differentials for those superior kinds of carcasses or cattle, so there has been little incentive for them to be produced. However, if and when these kinds are given their proper recognition in trading, their production will surely be encouraged. Dual grading offers one means of providing such recognition.

Some retailers have shown a definite interest in dual grading and have paid differentials of from 75 cents to \$2 per hundredweight between yield grades. Other retailers who purchase beef of one of our regular grades have set up limitations on the degree of fatness they will accept. Many of these feel that they are getting a better-than-average selection of beef at the going price for the grade and thus see no particular advantage to using dual grading. Still other retailers personally select their carcasses in packers' coolers. While they frequently pay a token premium for the privilege of this selection, they are able to "cream" the cooler and thereby get only the really meat-type carcasses. These retailers view dual grading as a distinct disadvantage. However, I submit to you that from your standpoint and the well-being of the entire industry this is a very strong argument for dual grading. Anything that will assist or encourage the trade to get full value for this high cutability beef is certainly in your interest.

There are some encouraging signs for the dual grading concept in some recent actions of the industry. To mention only a few: (1) The brand development program of several individual packers who are using the same general approach as dual grading, (2) the establishment of active carcass evaluation programs by 2 of the major beef breed associations, and (3) the increase in carcass contests around the country.

SUMMARY

In conclusion, I hope that it is evident to you that dual grading provides a more precise market identification for carcasses and cattle than is possible through our present single grade system. I would again like to emphasize that the consumer has shown a strong preference for high quality beef but the aversion to excess fat on beef is becoming more pronounced.

Cattle producers--particularly purebred breeders and commercial breeders--are faced with both a challenge and an opportunity that is without parallel in the history of the beef industry. Truly meat-type cattle are a product of their heridity and not merely the result of a shorter turn in the feedlot. The genetic improvement of cattle takes time and carcass excellence is but one of the important factors that cattlemen strive to improve. The production of greater numbers of meat-type cattle will not come overnight.

However, market recognition of the value differences associated with variations in cutability will be essential to furnish cattlemen/the financial incentive to increase the volume of high value "meat-type" cattle--the thickly muscled cattle that combine high quality lean with a minimum of excess fat--which fulfill consumer demand. This is not an impossible task--there is an important nucleus from which to start. We find many of these superior carcasses in plants throughout the country. One reason that we do not have more of them is that they are not being identified, and their identification is not being reflected back to the breeders and feeders who produced them. The dual grading approach can provide this identification.

Finally, the stakes in the new look for beef are high and the major benefits from the transition to cattlemen may well include:

- (1) Payment for cattle more in line with their ultimate retailer-consumer value;
- (2) Increase in volume of high quality meat-type cattle;
- (3) A greater share of the consumer dollar through reduced waste fat that must be transported and trimmed;
- (4) A greater consumer demand for beef.

May I urge you to take a careful, objective look at this new marketing tool--dual grading--and consider not only what is beneficial to you but to the entire beef industry.

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